

**WHAT IS CLAIMED IS:**

1. A computing system, comprising:
  - 5 a computer card, wherein the computer card comprises:
    - a frame;
    - a printed circuit board mounted to the frame;
    - a CPU comprised on the printed circuit board;
    - a memory comprised on the printed circuit board;
    - 10 a non-volatile memory comprised on the frame;
    - human interface logic comprised on the printed circuit board which is operable to receive one or more human interface signals and encode the one or more human interface signals into a format suitable for transmission to a remote location; and
  - 15 a human interface connector coupled to the human interface logic, wherein the human interface connector is adapted to couple to one or more cables for transmission of the encoded one ore more human interface signals to the remote location.
- 20 2. The computing system of claim 1, wherein the human interface logic is operable to encode the one or more human interface signals into a format suitable for transmission of a distance greater than 20 feet to the remote location.
- 25 3. The computing system of claim 1, wherein the human interface logic is operable to receive two or more human interface signals and encode the two or more human interface signals into a format suitable for transmission to the remote location.

4. The computing system of claim 3, wherein the two or more human interface signals comprise two or more of a video signal, keyboard signal, and pointing device signal.

5 5. The computing system of claim 3, wherein the two or more human interface signals comprise three or more of a video signal, keyboard signal, pointing device signal, and audio signal.

10 6. The computing system of claim 1, further comprising keyboard logic comprised on the printed circuit board for interfacing to a keyboard; wherein the keyboard logic is coupled to the human interface logic; wherein the keyboard logic generates keyboard signals that are provided to the human interface logic, wherein the one or more human interface signals include the keyboard signals;

15 wherein the human interface logic is operable to receive the keyboard signals; and wherein the human interface logic is operable to encode the keyboard signals into a format suitable for transmission to the remote location.

20 7. The computing system of claim 1, further comprising pointing device logic comprised on the printed circuit board for interfacing to a pointing device; wherein the pointing device logic is coupled to the human interface logic; wherein the pointing device logic generates pointing device signals that are provided to the human interface logic, wherein the one or more human interface signals include the pointing device signals;

25 wherein the human interface logic is operable to receive the pointing device signals; and wherein the human interface logic is operable to encode the pointing device signals into a format suitable for transmission to the remote location.

8. The computing system of claim 1, further comprising:  
keyboard logic comprised on the printed circuit board for interfacing to a  
keyboard; and  
pointing device logic comprised on the printed circuit board for interfacing to a  
5 pointing device;  
wherein each of the keyboard logic and the pointing device logic is coupled to the  
human interface logic;  
wherein the keyboard logic generates keyboard signals that are provided to the  
human interface logic;  
10 wherein the pointing device logic generates pointing device signals that are  
provided to the human interface logic; and  
wherein the encoded one or more human interface signals include encoded  
keyboard signals and encoded pointing device signals.
- 15 9. The computing system of claim 1, further comprising USB logic  
comprised on the printed circuit board for interfacing to a USB device;  
wherein the USB logic is coupled to the human interface logic;  
wherein the USB logic generates USB signals that are provided to the human  
interface logic, wherein the one or more human interface signals include the USB signals;  
20 wherein the human interface logic is operable to receive the USB signals; and  
wherein the human interface logic is operable to encode the USB signals into a  
format suitable for transmission to the remote location.
10. The computing system of claim 1, further comprising video logic  
25 comprised on the printed circuit board for interfacing to a video display device;  
wherein the video logic is coupled to the human interface logic;  
wherein the video logic generates video signals that are provided to the human  
interface logic, wherein the one or more human interface signals include the video  
signals;

wherein the human interface logic is operable to receive the video signals; and  
wherein the human interface logic is operable to encode the video signals into a  
format suitable for transmission to the remote location.

- 5        11.      The computing system of claim 1, further comprising audio logic  
comprised on the printed circuit board for interfacing to an audio device;  
            wherein the audio logic is coupled to the human interface logic;  
            wherein the audio logic generates audio signals that are provided to the human  
interface logic, wherein the one or more human interface signals include the audio  
10     signals;  
            wherein the human interface logic is operable to receive the audio signals; and  
            wherein the human interface logic is operable to encode the audio signals into a  
format suitable for transmission to the remote location.

- 15        12.      The computing system of claim 1, further comprising network interface  
logic comprised on the printed circuit board for interfacing to a network, wherein the  
network logic is operable to encode network signals into a format suitable for  
transmission to the network.

- 20        13.      The computing system of claim 1, further comprising a power supply  
comprised on the frame, wherein the power supply is operable to couple to an external  
power source and supply power to the computing system.

- 25        14.      The computing system of claim 1, further comprising:  
            a cage having a plurality of slots, wherein the computer card is adapted to be  
inserted into a slot of the cage, wherein the cage includes a cage connector which is  
adapted to couple to the human interface connector on the computer card, wherein the  
cage connector also includes an external second connector electrically coupled to the cage  
connector, wherein the external second connector is adapted for coupling to the one or

more cables for transmission of the encoded one or more human interface signals to the remote location.

15. A computing system, comprising:  
5 a computer card, wherein the computer card comprises:  
a frame;  
a printed circuit board mounted to the frame;  
a CPU comprised on the printed circuit board;  
a memory comprised on the printed circuit board;  
10 a non-volatile memory comprised on the frame;  
a human interface connector adapted to couple to one or more cables for reception of encoded one or more human interface signals from a remote location, wherein the encoded one or more human interface signals are encoded in a format suitable for transmission from the remote location to the computing system; and  
15 human interface logic comprised on the printed circuit board and coupled to the human interface connector, wherein the human interface logic is operable to receive the encoded one or more human interface signals from the remote location, wherein the human interface logic is operable to decode the encoded one or more human interface signals to produce decoded human interface signals;  
20 wherein the decoded human interface signals are useable in the computing system.

16. The computing system of claim 15, wherein the human interface logic is operable to decode the one or more human interface signals from a format suitable for transmission of a distance greater than 20 feet from the remote location.  
25

17. The computing system of claim 15, wherein the human interface logic is operable to receive incoming encoded two or more human interface signals from the

remote location and decode the encoded two or more human interface signals from a format suitable for transmission from the remote location.

18. The computing system of claim 17, wherein the incoming encoded two or  
5 more human interface signals comprise two or more of an incoming encoded video signal, keyboard signal, and pointing device signal.

19. The computing system of claim 17, wherein the incoming encoded two or  
more human interface signals comprise three or more of an incoming encoded video  
10 signal, keyboard signal, pointing device signal, and audio signal.

20. The computing system of claim 15, further comprising keyboard logic comprised on the printed circuit board for interfacing to a keyboard;  
wherein the keyboard logic is coupled to the human interface logic;  
15 wherein the human interface logic is operable to receive the keyboard signals from the remote location;  
wherein the human interface logic is operable to decode the encoded keyboard signals from a format suitable for transmission from the remote location;  
wherein the keyboard logic receives the decoded keyboard signals from the human  
20 interface logic; and  
wherein the decoded human interface signals include the decoded keyboard signals.

21. The computing system of claim 15, further comprising pointing device logic comprised on the printed circuit board for interfacing to a pointing device;  
25 wherein the pointing device logic is coupled to the human interface logic;  
wherein the human interface logic is operable to receive the pointing device signals from the remote location;

wherein the human interface logic is operable to decode the encoded pointing device signals from a format suitable for transmission from the remote location;

wherein the pointing device logic receives the decoded pointing device signals from the human interface logic; and

5 wherein the decoded human interface signals include the decoded pointing device signals.

22. The computing system of claim 15, further comprising:

keyboard logic comprised on the printed circuit board for interfacing to a

10 keyboard; and

pointing device logic comprised on the printed circuit board for interfacing to a pointing device;

wherein each of the keyboard logic and the pointing device logic is coupled to the

15 human interface logic;

wherein the keyboard logic receives decoded keyboard signals that are provided

by the human interface logic;

wherein the pointing device logic receives decoded pointing device signals that

are provided by the human interface logic; and

20 wherein the decoded human interface signals include the decoded keyboard signals and the decoded pointing device signals.

23. The computing system of claim 15, further comprising USB logic

comprised on the printed circuit board for interfacing to a USB device;

wherein the USB logic is coupled to the human interface logic;

25 wherein the human interface logic is operable to receive encoded USB signals

from the remote location;

wherein the human interface logic is operable to decode the encoded USB signals

from a format suitable for transmission from the remote location;

wherein the USB logic receives the decoded USB signals from the human interface logic; and  
wherein the decoded human interface signals include the decoded USB signals.

5        24.      The computing system of claim 15, further comprising video logic comprised on the printed circuit board for interfacing to a video display device;  
wherein the video logic is coupled to the human interface logic;  
wherein the human interface logic is operable to receive encoded video signals from the remote location;  
10        wherein the human interface logic is operable to decode the encoded video signals from a format suitable for transmission from the remote location;  
wherein the video logic receives the decoded video signals from the human interface logic; and  
wherein the decoded human interface signals include the decoded video signals.

15        25.      The computing system of claim 15, further comprising audio logic comprised on the printed circuit board for interfacing to an audio device;  
wherein the audio logic is coupled to the human interface logic;  
wherein the human interface logic is operable to receive encoded audio signals from the remote location;  
20        wherein the human interface logic is operable to decode the encoded audio signals from a format suitable for transmission from the remote location;  
wherein the audio logic receives the decoded audio signals from the human interface logic; and  
25        wherein the decoded human interface signals include the decoded audio signals.

26.      The computing system of claim 15, further comprising network interface logic comprised on the printed circuit board for interfacing to a network, wherein the

network interface logic is operable to receive encoded network signals from the network and decode the encoded network signals.

27. The computing system of claim 15, further comprising a power supply  
5 comprised on the frame, wherein the power supply is operable to couple to an external power source and supply power to the computing system.

28. The computing system of claim 15, further comprising:  
a cage having a plurality of slots, wherein the computer card is adapted to be  
10 inserted into a slot of the cage, wherein the cage includes a cage connector which is adapted to couple to the human interface connector on the computer card, wherein the cage connector also includes an external second connector electrically coupled to the cage connector, wherein the external second connector is adapted for coupling to the one or more cables for reception of the encoded one or more human interface signals from the  
15 remote location.

29. A computing system, comprising:  
a computer card, wherein the computer card comprises:  
a frame;  
20 a printed circuit board mounted to the frame;  
a CPU comprised on the printed circuit board;  
a memory comprised on the printed circuit board;  
a non-volatile memory comprised on the frame;  
human interface logic comprised on the printed circuit board which is  
25 operable to perform one or more of: 1) receiving one or more outgoing human interface signals and encoding the one or more outgoing human interface signals into a format suitable for transmission to a remote location or 2) receiving one or more incoming encoded human interface signals from the remote location and

decoding the one or more incoming human interface signals into a format suitable for transmission to logic on the computing system;

5           a human interface connector coupled to the human interface logic, wherein the human interface connector is adapted to couple to one or more cables for communication of one or more outgoing or incoming encoded human interface signals with the remote location; and

              a power supply comprised on the frame, wherein the power supply is operable to couple to an external power source and supply power to the computing system.

10

30.     The computing of claim 29, wherein the remote location is more than 20 feet from the computing system.

15

31.     A system comprising a plurality of computing systems, the system comprising:

              a cage having a plurality of slots, wherein each of the slots is adapted to receive a computer card;

              wherein each computer card comprises:

              a frame;

20

              a printed circuit board mounted to the frame;

              a CPU comprised on the printed circuit board;

              a memory comprised on the printed circuit board;

              a non-volatile memory comprised on the frame;

              human interface logic comprised on the printed circuit board which is

25

operable to receive two or more human interface signals and encode the two or more human interface signals into a format suitable for transmission to a remote location;

              a human interface connector coupled to the human interface logic, wherein the human interface connector is adapted to couple to one or more cables for transmission of the encoded two or more human interface signals to the remote location; and

a power supply comprised on the frame, wherein the power supply is operable to couple to an external power source and supply power to the computing system.

5           32.     The system of claim 31,  
wherein each computer card further comprises network interface logic comprised on the printed circuit board for interfacing to a network.

10          33.     The system of claim 31,  
wherein each of the computer cards further includes one or more of video interface logic, keyboard interface logic, and pointing device logic for generating video signals, keyboard signals, and pointing device signals, respectively; and  
wherein the one or more of the video interface logic, keyboard interface logic, and pointing device logic are each adapted to couple to the human interface logic;  
15          wherein the human interface logic is operable to receive one or more of the video signals, the keyboard signals, and the pointing device signals, and encode the signals into a format suitable for transmission to the remote location; and  
wherein the encoded one or more of the video signals, the keyboard signals, and the pointing device signals, are comprised in the encoded human interface signals.

20          34.     The system of claim 31,  
wherein each of the computer cards further includes one or more of audio interface logic and USB interface logic, for generating audio signals and USB signals, respectively;  
25          wherein the one or more of the audio interface logic and the USB interface logic are each adapted to couple to the human interface logic;  
wherein the human interface logic is operable to receive the one or more of the audio signals and the USB signals and encode the one or more of the audio signals and the USB signals into a format suitable for transmission to the remote location; and

wherein the encoded one or more of the audio signals and the USB signals are comprised in the encoded human interface signals.

35. The system of claim 31,

5 wherein each of the computer cards further includes three or more of video interface logic, keyboard interface logic, pointing device logic, audio interface logic, and USB interface logic, for generating video signals, keyboard signals, pointing device signals, audio signals, and USB signals respectively; and

10 wherein the three or more of the video interface logic, keyboard interface logic, pointing device logic, audio interface logic, and USB interface logic are each adapted to couple to the human interface logic;

15 wherein the human interface logic is operable to receive the three or more of the video signals, keyboard signals, pointing device signals, audio signals, and USB signals, and encode the signals into a format suitable for transmission to the remote location; and

15 wherein the encoded three or more of the video signals, keyboard signals, pointing device signals, audio signals, and USB signals, are comprised in the encoded human interface signals.

36. The system of claim 31,

20 wherein the cage further comprises a cage connector which is adapted to couple to the human interface connector on each of the computer cards, wherein the cage connector also includes an external second connector adapted for coupling to the one or more cables for transmission of the encoded human interface signals to the remote location.

25 37. The system of claim 36,

wherein the cage connector is further adapted to couple to the network interface logic on each of the computer cards, wherein the external second connector is also adapted for coupling to one or more network cables for coupling each of the computer cards to the network.

38. The system of claim 36,  
wherein each of the computer cards further includes one or more of video  
interface logic for generating video signals, keyboard interface logic for generating  
5 keyboard signals, and pointing device interface logic for generating pointing device  
signals; and  
wherein the cage connector is further adapted to couple to the one or more of the  
video interface logic, the keyboard interface logic, and the pointing device interface logic  
on each of the computer cards, wherein the external second connector is also adapted for  
10 coupling to the one or more cables for transmission of the one or more of the video  
signals, the keyboard signals, and the pointing device signals, to the remote location.

39. The system of claim 36,  
wherein each of the computer cards further includes one or more of audio  
15 interface logic for generating audio signals and USB interface logic for generating USB  
signals; and  
wherein the cage connector is further adapted to couple to the one or more of the  
audio interface logic and the USB interface logic on each of the computer cards, wherein  
the external second connector is also adapted for coupling to the one or more cables for  
20 transmission of the one or more of the audio signals and the USB signals to the remote  
location.

40. The system of claim 31,  
wherein the human interface logic is operable to encode the one or more human  
25 interface signals into a format suitable for transmission of a distance greater than 20 feet  
to the remote location.

41. A system comprising a plurality of computing systems, the system  
comprising:

a cage having a plurality of slots, wherein each of the slots is adapted to receive a computer card;

wherein each computer card comprises:

a frame;

5 a printed circuit board mounted to the frame;

a CPU comprised on the printed circuit board;

a memory comprised on the printed circuit board;

a non-volatile memory comprised on the frame;

human interface logic comprised on the printed circuit board which is

10 operable to receive two or more encoded human interface signals from a remote location and decode the two or more human interface signals from a format suitable for transmission from the remote location;

15 a human interface connector coupled to the human interface logic, wherein the human interface connector is adapted to couple to one or more cables for reception of the encoded two or more human interface signals from the remote location;

20 a power supply comprised on the frame, wherein the power supply is operable to couple to an external power source and supply power to the computing system;

wherein the decoded human interface signals are useable by the computer card.

25

42. The system of claim 41, wherein each computer card further comprises network interface logic comprised on the printed circuit board for interfacing to a network.

25

43. The system of claim 41,

wherein each of the computer cards further includes one or more of video interface logic, keyboard interface logic, and pointing device logic for receiving encoded video signals, encoded keyboard signals, and encoded pointing device signals, respectively;

wherein the one or more of the video interface logic, keyboard interface logic, and pointing device logic are each adapted to couple to the human interface logic;

wherein the human interface logic is operable to receive one or more of the encoded video signals, the encoded keyboard signals, and the encoded pointing device signals from the remote location and , and decode the one or more of the encoded video signals , the encoded keyboard signals, and the encoded pointing device signals from a format suitable for transmission from the remote location; and

wherein the one or more of the encoded video signals, the encoded keyboard signals, and the encoded pointing device signals are comprised in the encoded human interface signals.

44. The system of claim 41,

wherein each of the computer cards further includes one or more of audio interface logic and USB interface logic for receiving encoded audio signals and encoded 15 USB signals, respectively;

wherein the one or more of the audio interface logic and USB interface logic are each adapted to couple to the human interface logic;

wherein the human interface logic is operable to receive one or more of the encoded audio signals and the encoded USB signals from the remote location and , and 20 decode the one or more of the encoded audio signals and the encoded USB signals from a format suitable for transmission from the remote location; and

wherein the one or more of the encoded audio signals and the encoded USB signals are comprised in the encoded human interface signals.

25 45. The system of claim 41,

wherein each of the computer cards further includes three or more of video interface logic, keyboard interface logic, pointing device logic, audio interface logic, and 25 USB interface logic, for receiving encoded video signals, encoded keyboard signals,

encoded pointing device signals, encoded audio signals, and encoded USB signals respectively; and

wherein the three or more of the video interface logic, keyboard interface logic, pointing device logic, audio interface logic, and USB interface logic are each adapted to couple to the human interface logic;

wherein the human interface logic is operable to receive the three or more of the encoded video signals, the encoded keyboard signals, the encoded pointing device signals, the encoded audio signals, and the encoded USB signals, and decode the signals from a format suitable for transmission from the remote location; and

10 wherein the three or more of the encoded video signals, the encoded keyboard signals, the encoded pointing device signals, the encoded audio signals, and the encoded USB signals, are comprised in the encoded human interface signals.

46. The system of claim 41,

15 wherein the cage further comprises a cage connector which is adapted to couple to the human interface connector on each of the computer cards, wherein the cage connector also includes an external second connector adapted for coupling to the one or more cables for reception of encoded human interface signals from a remote location.

20 47. The system of claim 46,

wherein the cage connector is further adapted to couple to the network interface logic on each of the computer cards, wherein the external second connector is also adapted for coupling to one or more network cables for coupling each of the computer cards to the network.

25

48. The system of claim 46,

wherein each of the computer cards further includes one or more of video interface logic for receiving video signals, keyboard interface logic for receiving

keyboard signals, and pointing device interface logic for receiving pointing device signals; and

wherein the cage connector is further adapted to couple to the one or more of the video interface logic, the keyboard interface logic, and the pointing device interface logic on each of the computer cards, wherein the external second connector is also adapted for coupling to the one or more cables for reception of the one or more of the video signals, the keyboard signals, and the pointing device signals from the remote location.

49. The system of claim 46,

wherein each of the computer cards further includes one or more of audio interface logic for receiving audio signals and USB interface logic for receiving USB signals; and

wherein the cage connector is further adapted to couple to the one or more of the audio interface logic and the USB interface logic on each of the computer cards, wherein the external second connector is also adapted for coupling to the one or more cables for reception of the one or more of the audio signals and the USB signals to the remote location.

50. The system of claim 41,

wherein the human interface logic is operable to encode the one or more human interface signals into a format suitable for transmission of a distance greater than 20 feet to the remote location.

51. A system comprising a plurality of computing systems and corresponding human interfaces, the system comprising:

a cage having a plurality of slots, wherein each of the slots is adapted to receive a computer card;

wherein each computer card comprises:

a frame;

- 5
- a printed circuit board mounted to the frame;  
a CPU comprised on the printed circuit board;  
a memory comprised on the printed circuit board;  
a non-volatile memory comprised on the frame;  
10 human interface logic comprised on the printed circuit board which is  
operable to perform one or more of: 1) receiving one or more outgoing human interface  
signals and encoding the one or more outgoing human interface signals into a format  
suitable for transmission to a remote location, or 2) receiving one or more incoming  
encoded human interface signals from the remote location and decoding the one or more  
15 incoming human interface signals into a format suitable for transmission to logic on the  
computing system;
- 15
- a human interface connector coupled to the human interface logic, wherein  
the human interface connector is adapted to couple to one or more cables for  
communication of the one or more of outgoing or incoming encoded human interface  
signals with the remote location; and
- 20
- a power supply comprised on the frame, wherein the power supply is  
operable to couple to an external power source and supply power to the computing  
system;
- 25
- a plurality of human interfaces each located at a location remote from the cage,  
wherein each of the human interfaces includes a display device and at least one user input  
device; and
- at least one cable coupled between each computer card and a corresponding one of  
the human interfaces, wherein each at least one cable is operable to communicate the one  
or more outgoing or incoming encoded human interface signals with the corresponding  
human interface.

52. The system of claim 51,  
wherein the remote location is further than 20 feet from the cage.

53. The system of claim 51,  
wherein the cage further comprises a cage connector which is adapted to couple to  
the human interface connector on each of the computer cards, wherein the cage connector  
5 also includes an external second connector adapted for coupling to each of the one or  
more cables for communication of the one or more encoded outgoing or incoming human  
interface signals with the corresponding human interface.

54. The system of claim 51,  
10 wherein each computer card further comprises network interface logic comprised  
on the printed circuit board for interfacing to a network; and  
wherein the cage further comprises a cage connector which is adapted to couple to  
the network interface logic on each of the computer cards, wherein the cage connector  
also includes an external second connector adapted for coupling to one or more network  
15 cables for coupling each of the computer cards to the network.